

CLAIMS:

1. A navigation apparatus for transmitting information of a guiding route to a navigation terminal for performing route guidance of a moving object, characterized by including:
 - communication means for performing communication with the navigation terminal;
 - map data storing means for storing map data;
 - route searching means for searching, using the map data, a guiding route between a departure place and a destination received from the navigation terminal through the communication means;
 - shape-simplified road map data generating means for generating, using the map data, shape-simplified road map data which includes at least the guiding route and a road intersecting the recommended route and in which a road shape of the guiding route is simplified;
 - notice part detecting means for detecting as a notice part a part of the guiding route having a difference greater than a predetermined quantity between a shape of the guiding route in the map data and the shape of the guiding route in the shape-simplified road map data;
 - guidance notice information generating means for generating, on the basis of the difference at the notice part between the map data and the shape-simplified road map data, guidance notice information to be supplied to the navigation terminal when the moving object reaches the notice part in the route guidance; and
 - information delivering means for transmitting delivery information including the shape-simplified road map data and the guidance notice information to the navigation terminal using the communication means.
2. A navigation apparatus for performing route guidance

of a moving object, characterized by including:

map data storing means for storing map data;

setting means for receiving settings of a departure place and a destination;

5 route searching means for searching, using the map data, a guiding route between the departure place and the destination;

shape-simplified road map data generating means for generating, using the map data, shape-simplified road map data which includes at least the guiding route and a road intersecting the recommended route and in which a road shape of the guiding route is simplified;

notice part detecting means for detecting as a notice part a part of the guiding route having a difference greater than a predetermined quantity between a shape of the guiding route in the map data and the shape of the guiding route in the shape-simplified road map data; and

guidance notice information generating means for generating, on the basis of the difference at the notice part between the map data and the shape-simplified road map data, guidance notice information to be supplied to the navigation terminal when the moving object reaches the notice part in the route guidance.

25 3. The navigation apparatus as claimed in any of claim 1 or 2, characterized in that the shape-simplified road map data generating means performs a process of thinning coordinate values from a coordinate value string forming the guiding route.

30

4. The navigation apparatus as claimed in any of claim 1 or 2, characterized in that the shape-simplified road map data generating means performs a process of moving the coordinate values at a connection part between the guiding route and the road intersecting the guiding route.

35

5. The navigation apparatus as claimed in any of claim 1 or 2, characterized in that the shape-simplified road map data generating means performs a process of rotating a map forming object of the shape-simplified road map with respect to the departure place of the guiding route.

6. The navigation apparatus as claimed in any of claim 1 or 2, characterized in that the notice part detecting means detects, with respect to the coordinate values forming the coordinate value string of the guiding route in the road map data, the coordinate values as the notice part when an angle made between a first line section, forming the guiding route, having a start point or an end point at the coordinate values and a second line section of the guiding route in the shape-simplified road map data, corresponding to the first section is equal to or greater than a predetermined value.

7. The navigation apparatus as claimed in any of claim 1 or 2, characterized in that the guidance notice information generating means generates the guidance notice information for each of coordinate values detected as the notice part and a plurality of coordinate values following the coordinates out of the coordinate values forming the coordinate value string of the guiding route in the road map data on the basis of increase and decrease trends in an angle made between a first line section having a start point or an end point at the coordinate values and a second line section of the guiding route in the shape-simplified road map data, corresponding to the first line section.

8. A route guiding method in which information of a guiding route is transmitted by a navigation apparatus to a navigation terminal for performing route guidance of a

moving object, characterized by including:

a route searching step of searching, using map data stored in map data storing means, a guiding route between a departure place and a destination received from the

5 navigation terminal;

a shape-simplified road map data generating step of generating, using the map data, shape-simplified road map data which includes at least the guiding route and a road intersecting the guiding route and in which a road shape
10 of the guiding route is simplified;

a notice part detecting step of detecting as a notice part a part of the guiding route having a difference greater than a predetermined quantity between a shape of the guiding route in the map data and the shape of the guiding
15 route in the shape-simplified road map data;

a guidance notice information generating step of generating, on the basis of the difference in the notice part between the map data and the shape-simplified road map data, guidance notice information to be supplied to the
20 navigation terminal when the moving object reaches the notice part in the route guidance; and

an information delivering step of transmitting delivery information including the shape-simplified road map data and the guidance notice information to the
25 navigation terminal.

9. A route guiding method in which a navigation apparatus performs route guidance of a moving object, characterized by comprising:

30 a setting step of receiving settings of a departure place and a destination;

a route searching step of searching, using the map data stored in map data storing means, a guiding route between the departure place and the destination;

35 a shape-simplified road map data generating step of

generating, using the map data, shape-simplified road map data which includes at least the guiding route and a road intersecting the guiding route and in which a road shape of the guiding route is simplified;

5 a notice part detecting step of detecting as a notice part a part of the guiding route having a difference greater than a predetermined quantity between a shape of the guiding route in the map data and the shape of the guiding route in the shape-simplified road map data; and

10 a guidance notice information generating step of generating, on the basis of the difference at the notice part between the map data and the shape-simplified road map data, guidance notice information to be outputted when the moving object reaches the notice part in the route guidance.